## CLAIMS

What is claimed is:

- 1. A semiconductor Type Two phased locked loop filter having a passive capacitor part and an active resistor part; said active resistor part being integrated with the passive capacitor part.
- 10 2. The filter as in claim 1 wherein the active resistor is a standard FET device.
  - 3. The filter as in claim 1 wherein the active resistor is continuously variable.

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4. The filter as in claim 1 wherein the Type Two phased locked loop filter operates from a voltage and the active resistor part is controlled by a regulator circuit operating from a voltage that follows the type two phased locked loop voltage.

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5. The filter as in claim 4 wherein the regulator circuit is bootstrapped to the phased locked loop voltage using a voltage follower configured op-amp.

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6. The filter as in claim 4 wherein the phased locked loop filter has a current and regulator circuit comprising

- a current source and a voltage source wherein the current source is tied to the phased locked loop filter current and the voltage source is used to tune the active resistor.
- 7. The filter as in claim 4 wherein the phased locked loop filter has a current and regulator circuit comprising a current source and a voltage source wherein the voltage source is tied to the phased locked loop voltage and the current source is used to tune the active resistor.

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- 8. The filter as in claim 1 wherein all the parts are made in the same CMOS manufacturing step.
- 9. A semiconductor phased locked loop system comprising:
  - a charge pump;
  - a voltage controller oscillator; and
- a Type Two filter comprising a passive capacitor part and an active resistor part, said active resistor part being integrated with the passive capacitor part.

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10. A method of manufacturing a semicondutor Type Two phased locked loop filter comprising:

providing a passive capacitor part and an active resistor part; said active resistor part being integrated with the passive capacitor part.

11. A method as claimed in claim 10 wherein all the parts are made in the same CMOS manufacturing step whereby no special steps for including passive resistor components is required.

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